REMARKS

Initially, Applicants wish to thank the Examiner for the detailed Office Action. In the outstanding Office Action, claims 1, 8 and 18 were rejected under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the written description requirement. Claim 1 was rejected under 35 U.S.C. §103(a) as being unpatentable over ASANO (U.S. Patent Application Publication No. 2003/0185236) in view CHIN (U.S. Patent No. 7,277,453), and further in view of BORELLA (U.S. Patent No. 6,697,354). Claims 2-7 were rejected under 35 U.S.C. §103(a) as being unpatentable over ASANO in view of CHIN, and further in view of DONAHUE (U.S. Patent No. 7,020,720). Claims 8-26 were rejected under 35 U.S.C. §103(a) as being unpatentable over ASANO in view of DONAHUE, and further in view of BORELLA.

Applicants traverse the rejection of claims 1, 8 and 18 under 35 U.S.C. §112, first paragraph. The Office Action asserts that the application specification as filed fails to disclose the claimed features ---without using network address translation and without mapping a first IP address to a second IP address---. In this regard, paragraphs [0059] through [0062] of the publication of the present application (*i.e.*, U.S. Patent Application Publication No. 2005/0027834) disclose that *a DHCPv4 request is encapsulated in an IPv6 packet* by a subscriber device 10 or a subscriber's interface to a TSP network, such as a modem 11. The IPv6 packet is routed through a TSP network 20 to an egress edge device 23, which forwards the IPv6 packet to an ISP edge device 41 at step s332. The subscriber device 10 may learn an IPv6 address of the ISP edge device 41 after an initial session in order to more efficiently enable subsequent sessions. After the ISP edge device 41 receives the IPv6 packet, it decapsulates the IPv6 packet and extracts the DHCPv4 request at step s334. The DHCPv4 request is forwarded to a DHCP server 45 at step s336. After authentication, the DHCP server 45 allocates an IPv4

address from the IP address block, associated with the ISP network 40, to the subscriber device 10. The *ISP-IPv4 address is included in a DHCPv4 response*, which is sent to the ISP edge device 41 at step 338 and encapsulated in an IPv6 packet at step 340. The *destination address of the IPv6 packet is the TSP-IPv6 already associated with the subscriber device 10*, which has likewise been extracted from the DHCPv4 request and included in the DHCPv4 response.

At step s342, the IPv6 packet is sent from the ISP edge device 41 to an egress edge device 23, through the TSP network 20, to the ingress edge device 22. The ingress edge device 22 forwards the IPv6 packet to the subscriber device 10, over the broadband access link 12, at step s344. The subscriber device 10 decapsulates the IPv6 packet, *extracts the DHCPv4 response and obtains the ISP-IPv4 address allocated to the subscriber device 10*. Accordingly, at step s346, *data from the subscriber device 10 is associated with two source IP addresses, the TSP-IPv6 address and the ISP-IPv4 address, to enable use of the IP broadband capabilities of the TSP network 20*. Further, bi-level addressing as described above enables use of an IPv6 network (*i.e.*, the TSP network 20) to transport IPv4 packets. Therefore, the application specification as filed clearly discloses forwarding a data packet addressed with both the first IP address and the second IP address, from the subscriber device, *without using network address translation and without mapping the first IP address to the second IP address*, as specified in Applicants' independent claims 1, 8 and 18.

In view of the above, reconsideration and withdrawal of the rejection of claims 1, 8 and 18 under 35 U.S.C. 112, first paragraph is requested.

Applicants traverse the rejection of claim 1 under 35 U.S.C. 103(a) as being unpatentable over ASANO in view CHIN, and further in view of BORELLA and the rejection of claims 2-7 under 35 U.S.C. 103(a) as being unpatentable over ASANO in view of CHIN, and further in

view of DONAHUE. Applicants' independent claim 1 recites, *inter alia*, assigning a second IP address to a subscriber device based on a request routed through a first IP network from the subscriber device, the second IP address being associated with a second IP network. The Office Action cites Figure 3 and column 6, line 55-67 of CHIN as teaching the above-noted features of Applicants' independent claim 1. The cited portions of CHIN disclose IPv4 hosts from a private network being able to unambiguously access IPv4 hosts in another private network by enabling connections to private hosts to be multiplexed based on a virtual address, rather than based on a global IPv4 address and a port number. However, the cited portions of CHIN fail to disclose or render obvious assigning a second IP address to a subscriber device *based on a request routed through a first IP network from the subscriber device*, the second IP address being associated with the second IP network, as recited in independent claim 1.

As illustrated in Figure 5 of CHIN, a synthesized IPv6 address for a remote host is extracted and *a requesting host allocates* a peer IPv4 address in an address space of a first private network *for the remote host* in step 508. More particularly, Figure 6 of CHIN illustrates extracting an IPv6 address from a domain name server (DNS) reply in step 616; allocating an IPv4 address in step 618; adding an IPv6 to IPv4 mapping into a virtual table in step 620; and sending an allocated IPv4 address to (a requesting host). That is, CHIN discloses receiving an *IPv6 address for a remote host*. CHIN further discloses allocating a peer private IPv4 address, *by a requesting host, for the remote host*. In contrast, claim 1 recites *assigning a second IP address to a subscriber device* based on a request routed through a first IP network *from the subscriber device*. In other words, claim 1 is directed to a subscriber device requesting a second IP address for itself, and not for a different subscriber device.

Applicants' independent claim 1 also recites, *inter alia*, a data packet addressed with both a first IP address and a second IP address, from a subscriber device without using network address translation and without mapping the first IP address to the second IP address. The Office Action cites Figure 6 and column 11, lines 10-30 and lines 35-41 (presumably incorrectly cited as columns 35-41) of CHIN as teaching these noted features. In this regard, the cited portions of CHIN disclose that IPv4 hosts from a private network access peer private hosts by associating an IPv4 address with a pseudo IPv6 address using a mapping created at a gateway node that maps between a peer host's "virtualized" IPv6 address and a local private IPv4 address. Figure 6, element 614 of CHIN illustrates forwarding a received DNS reply for a resource record to a host. As discussed above, CHIN discloses a source host that requests an IPv6 address for a destination host, and further allocates a peer private IPv4 address for the destination host. CHIN fails to disclose or render obvious forwarding a data packet is addressed with *both the first IP address and the second IP address*, as specified in independent claim 1, insofar as CHIN discloses a gateway 410 including a virtual table 432, containing IPv4 and IPv6 mappings and an IPv4/IPv6 translator module 440. If a forwarded data packet as disclosed in CHIN were addressed with both a first IP address and a second IP address, then the virtual table 432 and the IPv4/IPv6 translator module 440 disclosed by CHIN would be rendered superfluous.

The Office Action acknowledges that ASANO in view of CHIN fails to disclose or render obvious without using network address translation and without mapping the first IP address to the second IP address, as recited in Applicants' independent claim 1 and relies on BORELLA for these teachings. In this regard, BORELLA discloses a mobile network device that requests one or more locally-unique ports, with a port allocation protocol, from a second network device on a first network to identify the first network device, if the mobile first network

device roams to a second external network. The cited portions of BORELLA in Figures 7 and 9, column 11, lines 30-38 and column 14, lines 22-27 disclose globally unique ports that are used to create a combination network address comprising a globally unique port and a common external address to communicate with a second external computer network without address translation. However, BORELLA is directed to acquiring port numbers, and not acquiring a first IP address for a first IP network and a second IP address for a second IP network, to which Applicants claims are directed.

Modifying the combination of ASANO in view of CHIN with the teachings of BORELLA would destroy the teachings of ASANO and CHIN, as the features of claim 1 for which BORELLA is applied *are exactly the features taught against by CHIN*. In this regard, CHIN discloses that even though the private networks share only one global IPv4 address, connections to private hosts are multiplexed based on their virtual address, *rather than the one global IPv4 address and a port number* that usually involves the use of a once-off state (*see, e.g.*, column 6, line 63 to column 7, 1 of CHIN), whereas BORELLA discloses *globally unique ports that are used to create a combination network address* comprising a globally unique port and a common external address to communicate with a second external computer network without address translation in the cited portions, as noted above. Moreover, ASANO in view of CHIN discloses using *an IPv4 to IPv6 translation apparatus*, whereas BORELLA discloses obtaining globally unique ports *without network address translation*.

With regard the 35 U.S.C. §103(a) rejection of claims 2-7, arguments made above with respect to independent claim 1 are substantially applicable. Further, DONAHUE does not cure the deficiencies of ASANO and CHIN. That is, none of ASANO, CHIN and DONAHUE, either singularly or in any proper combination, disclose or render obvious at least forwarding a data

packet addressed with both the first IP address and the second IP address, from a subscriber device, without using network address translation and without mapping the first IP address to the second IP address, as specified in Applicants' independent claim 1.

Each of dependent claims 2-7 are allowable at least because they depend, directly or indirectly, from independent claim 1, which Applicants have shown to be allowable. Each of dependent claims 2-7 are also believed to recite further patentable subject matter. As such, allowance of the dependent claims is deemed proper for at least the same reasons noted for the independent claim upon which they depend, in addition to reasons related to their own recitations.

In view of the above, reconsideration and withdrawal of the rejection of claim 1under 35 U.S.C. 103(a) as being unpatentable over ASANO in view CHIN, and further in view of BORELLA and the rejection of claims 2-7 under 35 U.S.C. 103(a) as being unpatentable over ASANO in view of CHIN, and further in view of DONAHUE.

Applicants traverse the rejection of claims 8-26 under 35 U.S.C. 103(a) as being unpatentable over ASANO in view of DONAHUE, and further in view of BORELLA. Applicants' independent claim 8 recites, *inter alia*, sending a DHCP request through an IP network to a destination device in a destination network using an IP network address of the destination device, the destination device forwarding the DHCP request to a DHCP server. Applicants' independent claim 8 also recites, *inter alia*, receiving a DHCP response from the DHCP server, through the destination device, the DHCP response including a second subscriber IP address from the DHCP server, the second subscriber IP address being associated with the destination network. Applicants' independent claim 8 further recites, *inter alia*, sending the DHCP response through the IP network to the originating device using the first subscriber IP address, enabling the originating device to obtain the second subscriber IP address from the

DHCP response and forward subsequent data packets addressed with both the first subscriber IP address and the second subscriber IP address without using network address translation and without mapping the first subscriber IP address to the second subscriber IP address. The Office Action cites column 5, lines 30-64, column 6, lines 36-50 and column 6, line 64 through column 7, line 41 of DONAHUE as teaching the above-noted claimed combination of features. The Office Action further asserts that the DHCP server (in DONAHUE) looks into a packet to identify the source and destination hosts and thereafter, the first IP address is returned to the originating host as well as IP address of the second host.

In this regard, DONAHUE discloses a DHCP server 426 on a gateway that assigns 506 and transmits 508 a privately routable address 418 (in FIG. 4) to each host 302(1)-(N) (in FIG. 3) connected to the gateway. DONAHUE further discloses that a specific host transmits a request for a publically routable IP address (bypass IP address) to the gateway. In DONAHUE, a request for assigning the bypass IP address is received 518 by the gateway, which thereafter assigns 520, using the control program 414 (in FIG. 4), one publically routable IP address to the gateway and one publically routable IP address to the desired host. DONHUE also discloses that because a network address translation (NAT) service 420 (in FIG. 4) is built into the gateway, the gateway only requires one publically routable IP address to communicate with the public network 318 (in Fig. 3) and that, the first IP address is assigned to the NAT service and the second IP address is assigned to a desired host.

That is, DONAHUE discloses that packets intended for a private host can be addressed using a second publically routable IP address (*i.e.*, a bypass address) or the first publically routable IP address for the gateway, *but does not disclose that both addresses are ever used to address and forward a single packet*. DONAHUE discloses that because the NAT service 420

(in FIG. 4) is built into the gateway, the gateway only requires one publically routable IP address to communicate with the public network 318 (FIG. 3) (*see, e.g.,* column 7, lines 27-30 of DONAHUE). If one were to address the packets as disclosed in DONAHUE with a second publically routable IP address (*i.e.*, a bypass address) *and* the first publically routable IP address for the gateway, then the bypass address (*i.e.*, the second publically routable IP address) would be rendered superfluous. Accordingly, DONAHUE fails to disclose or render obvious sending the DHCP response through the IP network to the originating device using the first subscriber IP address, enabling the originating device to obtain the second subscriber IP address from the DHCP response and *forward subsequent data packets addressed with both the first subscriber IP address and the second subscriber IP address*, as recited in independent claim 1.

At most, DONAHUE discloses two IP addresses (*i.e.,* a privately routable IP address and a publically routable IP address) being associated with a host device. However, DONAHUE fails to disclose *sending a DHCP request through an IP network to a destination device in a destination network* using an IP network address of the destination device, the destination device forwarding the DHCP request to a DHCP server, as specified in Applicants' independent claim 8, at least insofar as the privately routable IP address and the publically routable IP address disclosed by DONAHUE are not for a first IP network and a second IP network. Further, DONAHUE fails to disclose or render obvious receiving a DHCP response from the DHCP server, through the destination device, *the DHCP response including a second subscriber IP address from the DHCP server, the second subscriber IP address being associated with the destination network*, as recited in Applicants' independent claim 8.

The Office Action acknowledges that ASANO in view of DONAHUE fails to disclose, without using network address translation and without mapping the first subscriber IP address to

the second subscriber IP address, as specified in independent claim 8 and relies on BORELLA as teaching these noted features. In this regard, BORELLA discloses globally unique ports that are used to create a combination network address comprising a globally unique port and a common external address to communicate with a second external computer network without address translation, as noted above. However, BORELLA fails to disclose a first IP address and a second IP address assigned to the same subscriber device.

Modifying the combination of ASANO in view of DONAHUE with the teachings of BORELLA would destroy the teachings of ASANO and DONAHUE, as noted above. In this regard, DONAHUE discloses *a network address translation service on a gateway to route packets* destined for an external network, whereas BORELLA discloses globally unique ports that are used to create a combination network address comprising a globally unique port and a common external address to communicate with a second external computer network *without address translation* in the cited portions, as noted above. Moreover, ASANO in view of DONAHUE is directed to a method *that eliminates the need implementing complex, port forwarding schemes* for inbound connections to the disclosed hosts 302(1)-(N), due to the hosts 302(1)-(N) having private IP addresses. In contrast, BORELLA discloses *obtaining globally unique ports* without network address translation, as discussed above.

Accordingly, for at least the reasons set forth above, claim 8 is allowable over ASANO in view of DONAHUE, and further in view of BORELLA.

Claim 18 is allowable for reasons similar to those discussed with respect to claims 1 and 8, in addition to reasons related to its own recitations. For example, neither ASANO, DONAHUE nor BORELLA, either singularly or in any proper combination, disclose or render obvious at least that a second DHCP server in the second IP network that receives a DHCP

request from the originating device through the at least one edge device, allocates a second subscriber IP address to the originating device, and sends a DHCP response having the second subscriber IP address through the at least one edge device to the originating device, the second subscriber IP address being associated with the second IP network, as in claim 18. Moreover, neither ASANO, DONAHUE nor BORELLA, either singularly or in any proper combination, disclose or render obvious at least that that an originating device forwards data packets with both the first subscriber IP address and the second subscriber IP address without using network address translation and without mapping the first subscriber IP address to the second subscriber IP address, as in claim 18.

Claims 9-17, and 19-26 are allowable at least for depending, directly or indirectly, from allowable independent claims 8 and 18, respectively, as well as for additional reasons related to their own recitations.

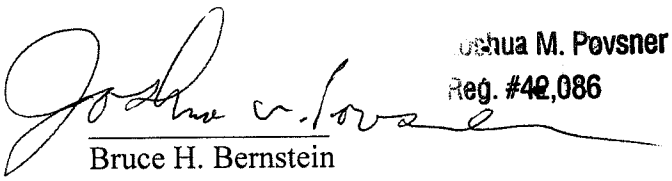
In view of the above, reconsideration and withdrawal of the rejection of claims 8-26 under 35 U.S.C. 103(a) as being unpatentable over ASANO in view of DONAHUE, and further in view of BORELLA.

At least in view of the herein contained remarks, Applicants request reconsideration and withdrawal of each of the outstanding rejections, together with an indication of the allowability of all pending claims, in due course. Such action is respectfully requested and is believed to be appropriate and proper.

Should an extension of time be necessary to maintain the pendency of this application, including any extensions of time required to place the application in condition for allowance by an Examiner's Amendment, the Commissioner is hereby authorized to charge any additional fee to Deposit Account No. 19-0089.

Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully Submitted,
Keith ALLEN et al.



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December 1, 2009
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